

Economic Impact Analysis of the Grain Belt Express Transmission Project on the State of Illinois

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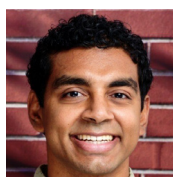
Dr. Loomis has published over 38 peer-reviewed articles in leading energy policy and economics journals. He has raised and managed over \$7 million in grants and contracts from government, corporate and foundation sources. He received the 2011 Department of Energy's Midwestern Regional Wind Advocacy Award and the 2006 Best Wind Working Group Award. Dr. Loomis received his Ph.D. in economics from Temple University in 1995.



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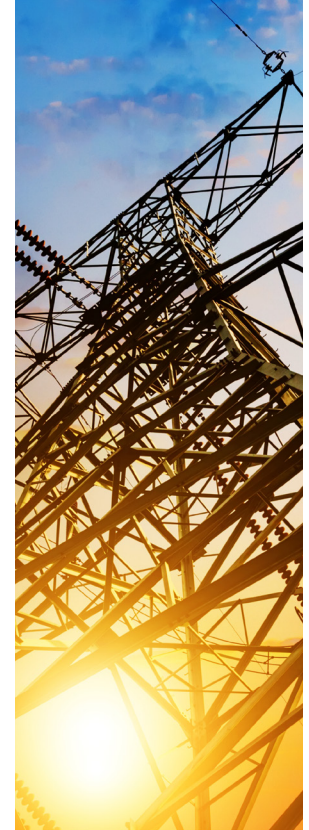
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Table of Contents

I. Executive Summary of Findings	1
II. Economic Benefits to Transmission Lines	2
III. State Economics	4
3.1 State of Illinois	4
IV. Economic Impact Methodology	7
4.1 IMPLAN	7
4.2 Project Cost and Transmission Modeling Assumptions	8
V. Economic Impact Results	10
VI. References	15
VII. Curriculum Vitae (Abbreviated)	18



About Strategic Economic Research, LLC

Strategic Economic Research, LLC (SER) provides economic consulting for renewable energy projects across the US. We have produced over 150 economic impact reports in 28 states. Authors include Dr. David G. Loomis, PhD, Bryan Loomis, MBA, and Chris Thankan. Research Associates who performed work on this project include Ethan Loomis, Madison Schneider, Zoe Calio, Patrick Chen, Kate Kostrub, Kathryn Keithley, and Morgan Stong.

Table of Contents - Figures & Tables

Figure 3.1 – Location of Illinois.....	4
Figure 3.2 – Total Employment in Illinois from 2010 to 2020	5
Figure 3.3 – Population in Illinois from 2010 to 2020.....	5
Figure 3.4 – Median Household Income in Illinois from 2010 to 2020	6
Figure 3.5 – Real Gross Domestic Product (GDP) in Illinois from 2010 to 2020.....	6

Table 3.1 – Employment by Industry in Illinois.....	4
Table 4.1 – Estimated Total Construction Cost Across All States including Imports (\$M)	8
Table 4.2 – Estimated Construction Cost by IMPLAN Category	8
Table 4.3 – Estimated Annual Operations Cost by IMPLAN Category in Illinois	9
Table 5.1 – Total Employment Impact from the Transmission Line for Illinois Counties	10
Table 5.2 – Total Employment Impact from Transmission Line for Illinois Counties (Cont.) ...	11
Table 5.3 – Total Earnings Impact from the Transmission Line for Illinois Counties.....	12
Table 5.4 – Total Earnings Impact from the Transmission Line for Illinois Counties (Cont.)...	12
Table 5.5 – Total Output Impact from the Transmission Line for Illinois Counties	13
Table 5.6 – Total Output Impact from the Transmission Line for Illinois Counties (Cont.)	14

I. Executive Summary of Findings

The Grain Belt Express Transmission Project (the Project) is a high voltage direct current (HVDC) transmission line that with associated converter and substations will deliver electricity between Ford County, Kansas and Clark County, Illinois. Although the exact route in Illinois has not been chosen, the line runs approximately 800 miles across the States of Kansas, Missouri, and Illinois and into Indiana.

The purpose of this report is to aid decision makers in evaluating the economic impact of this Project on the State of Illinois. This analysis estimates the direct, indirect, and induced impacts on job creation, wages, and total economic output of the transmission line itself.

The Grain Belt Express Transmission Line represents a \$7 billion investment by Invenenergy Transmission. This analysis modeled economic impacts associated with the first 20 years of the project life. In that period, the total development is anticipated to result in the following:

Jobs¹

- 4,999 jobs during construction supported for the State of Illinois
- Over 34 long-term jobs supported for the State of Illinois

Worker Earnings²

- Over \$565 million in earnings supported during construction for the State of Illinois
- Over \$4.5 million in long-term earnings supported for the State of Illinois annually

Economic Output³

- Over \$942 million in output supported during construction for the State of Illinois
- Over \$7.3 million for the State of Illinois in long-term output supported annually

Tax or Equivalent Government Revenue & Landowner Payments

- Tax or equivalent revenue to local government at the end of construction of over \$4.1 million and \$28.2 million during the first 20 years of operation.
- Landowner payments of over \$35.5 million.

¹ All jobs numbers are full-time equivalent jobs and include direct, indirect, and induced jobs. With a three-year construction period, the Project construction job figures would be divided by one-third for the number of jobs supported in any given year. Full-time equivalents are assumed to work 2,080 hours per year. All part-time jobs are converted to full-time equivalents in this report.

² Worker Earnings include the wages, salary and benefits associated with these jobs.

³ Economic Output is the value of goods and services produced in the state or local economy. It is an equivalent measure to the Gross Domestic Product. Economic Output includes Worker Earnings.

II. Economic Benefits to Transmission Lines

Most consumers of electricity do not give much thought to how their electricity gets delivered to their home or business. A vital piece of this delivery system is the electric transmission system. The transmission system connects large electric generators to the local distribution grid using HV transmission lines. Historically, public utilities built transmission lines to connect their own large-scale generators to their distribution system. Such transmission lines helped individual utilities to service their load but were not optimized to the modern realities of an interconnected grid that trades electricity across utility, state and even international borders. Today, transmission lines are necessary to ensure reliability allowing electricity to flow from one area to another to ensure that the supply is balanced with demand.

The total job growth from any infrastructure project, including transmission projects, can be divided into direct, indirect, and induced jobs:

- **Direct Jobs.** These are workers directly involved in the construction and maintenance of the project.
- **Indirect Jobs.** Numerous other jobs are supported through indirect supply chain purchases. For example, materials like wire, steel, and aggregate sourced within the state will support jobs for those suppliers.
- **Induced Jobs.** Higher spending by direct and indirect workers results in additional spending and jobs that are referred to as “induced” spending and jobs. As an example, grocery store workers, waiters and waitresses would be supported through spending from other workers.



In addition to job creation, transmission projects typically generate significant payments to local governments. As such, they strengthen the local tax base and help improve county services and local infrastructure, such as public roads.

Several studies have examined the economic impact of transmission line construction.

- The author studied the economic impact of the proposed Wolf Creek-Blackberry Transmission Project across Kansas and Missouri costing over \$85.1 million (Loomis, Loomis and Thankan, 2022a and 2022b). They found that the line would result in 998 jobs, 55.6 million in labor income and \$145 million in output for Kansas and 203.5 jobs, \$11.1 million in labor income and \$29.4 million in output for Missouri over a two-year construction period.
- NREL found that four HV transmission lines designed to export electricity from Wyoming would result in an average of 4,000-5,000 jobs per year for 10 years. (Lantz & Tegen, 2011)
- Strategic Economics Group (2013) examined the economic impacts of ITC Midwest Transmission Multi Value Projects (MVP) #3 and #4, both 345 kV transmission lines totaling 198.25 miles across Minnesota and Iowa. They were expected to cost \$255.5 million for MVP 3 and \$305.3 million for MVP 4. The combined impact of the projects was estimated to be 4,275 job-years resulting in \$207.8 million in labor income and \$723.2 million in output.
- The author also studied the economic impact of the proposed 700-mile, \$2.2 billion Grain Belt Express Clean Line Project going from Western Kansas to Western Indiana (Carlson and Loomis, 2013). They found that the line would result in 1,450 jobs, \$100.8 million in labor income and \$251.1 million in output for Illinois; 2,340 jobs, \$131.5 million in labor income and \$371 million in output for Kansas; and 1,315 jobs, \$77 million in labor income and \$206 million in output for Missouri annually over a three-year construction period.
- MISO studied the economic impact of in-service transmission projects from 2002 to 2015 totaling \$9.4 billion and found that 16,700 to 25,800 total jobs were created or supported in peak year 2014 with \$5 to \$8 billion in labor income and \$6.7 to \$11.3 billion of value-added impacts. (MISO, 2015)
- Iowa State University calculated direct and indirect estimates of job creation over a 30-year time frame due to construction and operation of a large-scale transmission expansion. The expansion increased employment for generation of energy from renewables from 650,000 to 950,000. (Swenson, 2018)
- The author studied the economic impact of the proposed SOO Green HVDC Link Transmission Project that is to run underground from Mason City, Iowa to Plano, Illinois and is expected to cost almost \$2.5 billion. This project is expected to support 6,799 jobs during construction in Iowa and an additional 5,614 jobs during construction in Illinois over a three-year period. (Loomis, 2020a; Loomis, 2020b)

III. State Economics

3.1 State of Illinois

Illinois is located in the Midwestern part of the United States (see Figure 3.1). It has a total area of 57,915 square miles and the U.S. Census estimates that the 2020 population was 12,812,508 with 5,426,429 housing units. The state has a population density of 232 (persons per square mile) compared to 87 for the United States.

Figure 3.1 – Location of Illinois



i. Economic and Demographic Statistics

As shown in Table 3.1, the largest industry is “Health Care and Social Assistance” followed by “Administrative Government,” “Professional, Scientific, and Technical Services” and “Accommodation and Food Services.” These data for Table 3.1 come from IMPLAN covering the year 2020 (the latest year available).

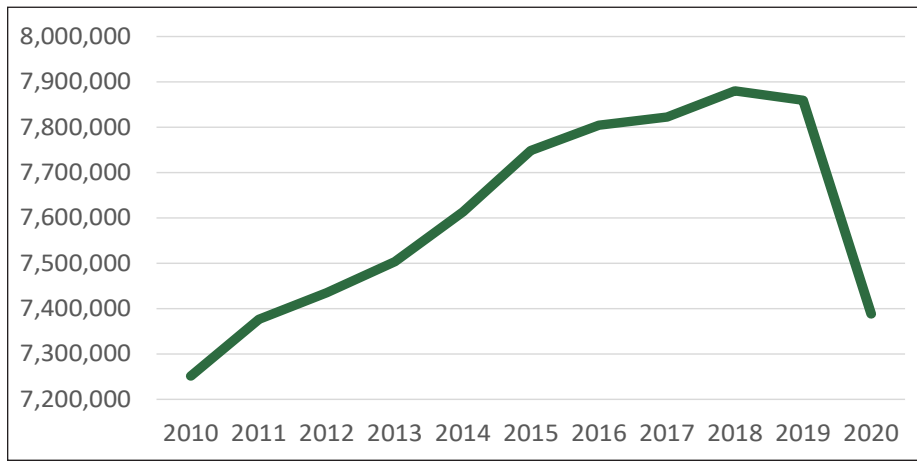
Table 3.1 – Employment by Industry in Illinois

Industry	Number	Percent
Health Care and Social Assistance	889,744	11.1%
Administrative Government	769,968	9.6%
Professional, Scientific, and Technical Services	665,919	8.3%
Accommodation and Food Services	640,472	8.0%
Retail Trade	634,906	7.9%
Manufacturing	606,764	7.6%
Administrative and Support and Waste Management and Remediation Services	547,335	6.9%
Other Services (except Public Administration)	516,872	6.5%
Transportation and Warehousing	502,347	6.3%
Finance and Insurance	501,824	6.3%
Construction	366,735	4.6%
Real Estate and Rental and Leasing	332,675	4.2%
Wholesale Trade	305,815	3.8%
Arts, Entertainment, and Recreation	157,512	2.0%
Educational Services	156,738	2.0%
Information	114,376	1.4%
Management of Companies and Enterprises	95,087	1.2%
Agriculture, Forestry, Fishing and Hunting	85,916	1.1%
Government Enterprises	48,484	0.6%
Utilities	25,684	0.3%
Mining, Quarrying, and Oil and Gas Extraction	22,475	0.3%

Source: Impact Analysis for Planning (IMPLAN), State Employment by Industry, 2020

Table 3.1 provides the most recent snapshot of total employment but does not examine the historical trends within the state. Figure 3.2 shows employment from 2010 to 2020. Total employment in Illinois was lowest at 7,251,002 in 2010 and its highest at 7,880,083 in 2018 (BEA, 2022).

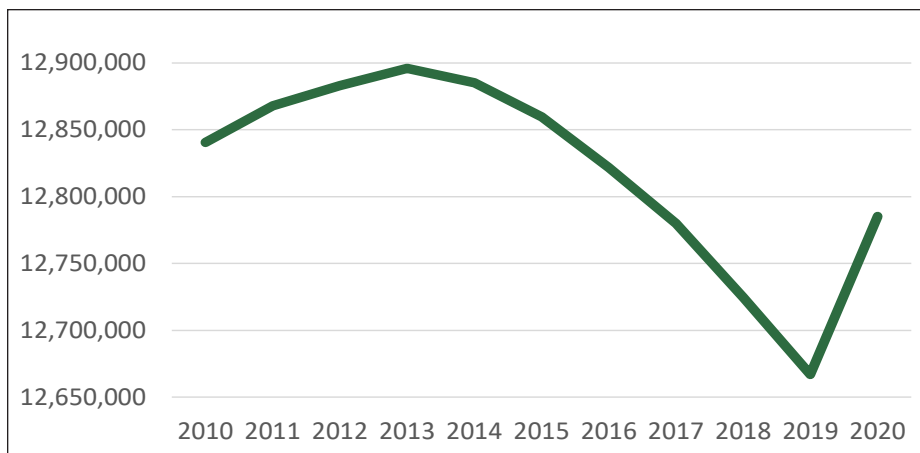
Figure 3.2 – Total Employment in Illinois from 2010 to 2020



Source: Bureau of Economic Analysis, Regional Data, GDP and Personal Income, 2010-2020

Similar to the employment trend, the overall population in the state has fluctuated, as shown in Figure 3.3. Illinois population was 12,840,545 in 2010 and 12,785,245 in 2020, a loss of 55,300 (FRED, 2022). The average annual population decrease over this time period was 5,530.

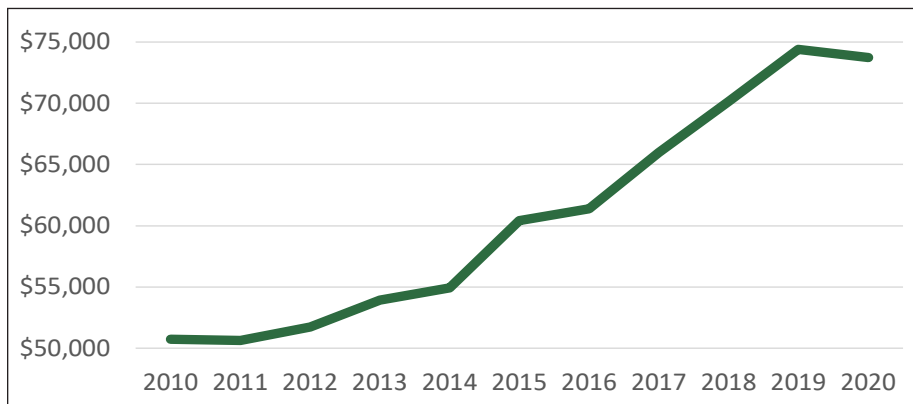
Figure 3.3 – Population in Illinois from 2010 to 2020



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Population Estimates, 2010-2020

Unlike the population trend, household income has been increasing steadily in Illinois. Figure 3.4 shows the median household income in Illinois from 2010 to 2020. Household income was at its lowest at \$50,637 in 2011 and its highest at \$74,399 in 2019 (FRED, 2022).

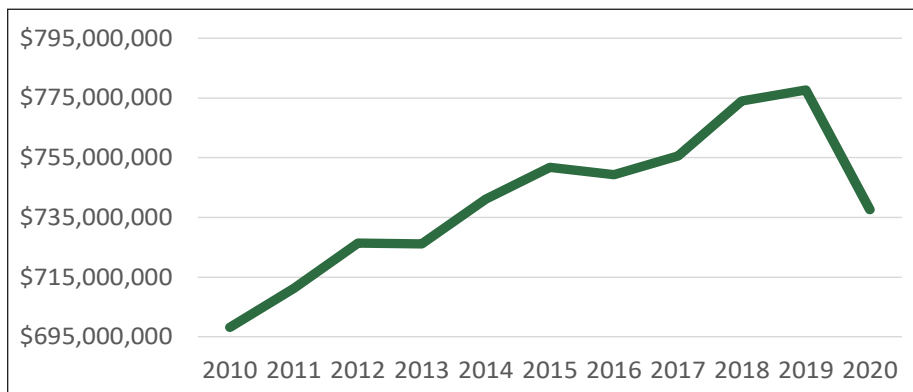
Figure 3.4 – Median Household Income in Illinois from 2010 to 2020



Source: FFederal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Estimate of Median Household Income, 2010-2020

Real Gross Domestic Product (GDP) is a measure of the value of goods and services produced in an area and adjusted for inflation over time. The Real GDP for Illinois was increasing since hitting a low in 2010, as shown in Figure 3.5 (BEA, 2022). The state has seen a drastic decrease in GDP since it hit a high in 2019.

Figure 3.5 – Real Gross Domestic Product (GDP) in Illinois from 2010 to 2020



Source: Bureau of Economic Analysis, Regional Data, GDP and Personal Income, 2010-2020

IV. Economic Impact Methodology

The impacts of construction and operation of the transmission line were estimated using the IMPLAN model. The specific impacts analyzed include direct, indirect, and induced effects on employment, labor income, and output for Christian County, Clark County, Cumberland County, Greene County, Macoupin County, Montgomery County, Pike County, Scott County, Shelby County, and the State of Illinois.

4.1 IMPLAN

The economic impacts of the manufacture of the required components, construction of the line, and operation and maintenance expenses were estimated using the IMPLAN model and 2020 data for Illinois and the individual counties. Stated briefly, the model is used to estimate the total impacts of an increase in spending in a particular industry. IMPLAN is an on-line program that allows construction of regional input-output models for areas ranging in size from a single zip code region to the entire United States. The model allows aggregation of individual regional - e.g., county - databases for multi-region analysis.



Total impacts are calculated as the sum of direct, indirect, and induced effects. *Direct effects* are production changes associated with the immediate effects of final demand changes, such as an increase in spending for the manufacture of new structures that will be used to support a new transmission line. *Indirect effects* are production changes in backward-linked industries caused by the changing input needs of the directly affected industry, e.g., additional purchases to produce additional output such as the steel used in the construction of the new transmission structures. *Induced effects* are the changes in regional household spending patterns caused by changes in household income generated from the direct and indirect effects. An example of the latter is the increased spending of incomes earned by newly hired steel workers.

The analysis summarized here focuses on the impacts of increased manufacturing of the different components of the transmission line, as well as construction of the line, on employment, employee compensation, and total expenditures (output). Employment includes total wage and salary employees as well as self-employed jobs in the region of interest. All of the employment figures reported here are full-time equivalents⁴ (FTE). Employee compensation represents income, including benefits, paid to workers by employers, as well as income earned by sole proprietors. Total output represents sales (including additions to inventory), i.e., it is a measure of the value of output produced. Impacts are estimated on a state-wide basis for Illinois and for individual counties.

⁴ IMPLAN jobs include all full-time, part time, and temporary positions. When employment is counted as full and part-time, one cannot tell from the data the number of hours worked or the proportion that is full or part-time. A full-time-employed (FTE) worker is assumed to work 2,080 hours (= 52 weeks x 40 hours/week) in a standard year. Employment impacts have been rescaled to reflect the change in the number of FTEs.

4.2 Project Cost and Transmission Modeling Assumptions

To estimate the economic impact of Project construction, we estimated construction costs by budget category and the geographic location where those costs will be incurred. Table 4.1 shows the estimated costs provided by the client. These budget categories are then translated into IMPLAN Sector Codes. The total Project costs modeled were \$5.7 billion. All construction spending was assumed to be spread evenly over the three-year construction period.

Table 4.1 – Estimated Total Construction Cost Across All States including Imports (\$M)

Budget Category	Total
HVDC Converter Stations, AC Switchyards and Interconnection Costs	\$2,995.00
Transmission Line Cost	\$2,312.30
Development Cost	\$415.20
Grand Total	\$5,722.50

Table 4.2 shows the annual construction costs broken out by IMPLAN sector that is expected to be spent per year for three years in Illinois. These costs only include the transmission line itself, Converter Station installation labor, and Development Costs. The land easements estimated here understate the total financial payments to landowners. In addition to the easement payments modeled here, the project will reimburse landowners for crop damages, and landowners will also have the option to elect for long-term annualized compensation for easements and structure payments.

Table 4.2 – Estimated Construction Cost by IMPLAN Category

IMPLAN Code	IMPLAN Description	Illinois Annual Spending
	Direct labor	\$107,193,948
	Land easements	\$11,845,105
29	Sand and gravel mining	\$7,403,213
215	Iron and steel mills and ferroalloy manufacturing	\$6,085,988
236	Fabricated structural metal manufacturing	\$18,130,906
329	Power, distribution, and specialty transformer manufacturing	\$19,843,229
336	Other communication and energy wire manufacturing	\$29,207,985
339	All other miscellaneous electrical equipment and component manufacturing	\$15,082,105
447	Other real estate	\$2,644,448
455	Legal services	\$787,702
457	Architectural, engineering, and related services	\$20,839,692
463	Environmental and other technical consulting services	\$882,740
465	Advertising, public relations, and related services	\$1,239,824
	Payments to local governments ⁵	\$1,387,800
	Total Annual Spending	\$242,574,686

⁵ Grain Belt Express has agreed to pay \$20,000/line-mile to local governments at the end of construction and \$7,000/line-mile to local governments during each year of operations.

These inputs are modeled using Analysis By Parts (ABP). Under this method, direct jobs, earnings and output are calculated outside of IMPLAN. Direct labor income and household spending (by income level within the state) are input into IMPLAN to show the induced impacts that would result from these expenditures. Inputs at the county level were allocated according to the line-mileage in that county. Converter stations were allocated to the specific county in which they will be located. The converter stations themselves are assumed to be purchased from overseas but the labor to install them is assumed to be sourced locally. It is unknown exactly where the interconnection upgrades and switchyards will be located so these costs were not allocated to any county or state in the analysis. Thus, the current analysis represents a very conservative estimate of the true economic impact that the Project will provide in total.

Table 4.3 shows the operations and maintenance costs broken out by IMPLAN sector and state.

Table 4.3 – Estimated Annual Operations Cost by IMPLAN Category in Illinois

IMPLAN Code	IMPLAN Description	Illinois Annual Spending
	Labor Totals - Converter Stations	\$2,559,756
	Labor Totals - T-Line	\$633,349
47	Electric power transmission and distribution	\$663,332
15	Forestry, forest products, and timber tract production	\$345,959
	Payment to local governments	\$1,411,222
	Total Annual Spending	\$5,613,618

These expenses are also modeled in IMPLAN using ABP and allocated to the counties by line-mile except for the converter station labor.

V. Economic Impact Results

The economic impact results were derived from detailed project cost estimates supplied by Invenenergy Transmission and the assumptions detailed in the previous section. A separate IMPLAN model was run individually for each county and for the state as a whole using the cost estimates in Table 4.2 allocated by line mile. Tables 5.1 to 5.6 show the economic impact of the Project using the IMPLAN model. The tables report the employment, earnings and output results at the county level and at the state level during construction and operations. Because these results only look at the effects of the expenditures within the county, they do not add up to the state totals in this section.

All jobs numbers in this report are full-time equivalent jobs. With a three-year construction period, the Project construction job figures would be divided by one-third for the annual number of jobs supported in any given year. Jobs during operations are long-term jobs existing annually for the life of the Project. Full-time equivalents are assumed to work 2,080 hours per year. All part-time jobs are converted to full-time equivalents in this report.

Tables 5.1 and 5.2 show the employment impacts from the transmission line on the counties in Illinois during construction and operations. The new local jobs created or retained during construction total 260 for Christian County, 803 for Clark County, 206 for Cumberland County, 103 for Greene County, 273 for Macoupin County, 212 for Montgomery County, 405 for Pike County, 126 for Scott County, 509 for Shelby County, and 4,999 for the State of Illinois. New local long-term jobs created from the Project total 1.3 for Christian County, 17.5 for Clark County, 0.7 for Cumberland County, 0.3 for Greene County, 1.4 for Macoupin County, 1.0 for Montgomery County, 1.1 for Pike County, 0.4 for Scott County, 0.8 for Shelby County, and 34 for the State of Illinois.

Table 5.1 – Total Employment Impact from the Grain Belt Express Transmission Line for Illinois Counties

	Christian County	Clark County	Cumberland County	Greene County	Macoupin County
Construction					
Direct	121	428	124	50	125
Indirect	49	162	48	28	63
Induced	90	213	34	25	85
Total	260	803	206	103	273
Operations					
Direct	0.3	12.0	0.3	0.1	0.3
Indirect	0.6	0.6	0.3	0.1	0.8
Induced	0.4	4.9	0.1	0.1	0.3
Total	1.3	17.5	0.7	0.3	1.4

Table 5.2 – Total Employment Impact from the Grain Belt Express Transmission Line for Illinois Counties (Cont.)

	Montgomery County	Pike County	Scott County	Shelby County	State of Illinois
Construction					
Direct	82	188	72	214	1,406
Indirect	65	106	29	167	1,406
Induced	65	111	25	128	2,187
Total	212	405	126	509	4,999
Operations					
Direct	0.2	0.5	0.2	0.6	14.6
Indirect	0.5	0.3	0.1	0.0	3.6
Induced	0.3	0.3	0.1	0.2	15.8
Total	1.0	1.1	0.4	0.8	34.0

Tables 5.3 and 5.4 show the earnings impacts from the transmission line for the counties in Illinois during construction and operations. The new local earnings during construction total over \$33 million for Christian County, over \$111 million for Clark County, over \$31 million for Cumberland County, over \$13.2 million for Greene County, over \$33.6 million for Macoupin County, over \$24 million for Montgomery County, over \$51.1 million for Pike County, over \$18.2 million for Scott County, over \$61.3 million for Shelby County, and over \$565 million for the State of Illinois. The new local long-term earnings total over \$156 thousand for Christian County, over \$2.7 million for Clark County, over \$134 thousand for Cumberland County, over \$35.9 thousand for Greene County, over \$123 thousand for Macoupin County, over \$114 thousand for Montgomery County, over \$139 thousand for Pike County, over \$47.5 thousand for Scott County, over \$131 thousand for Shelby County, and over \$4.5 million for the State of Illinois.

Assuming a 37.6% employer payroll overhead rate, the State of Illinois will receive \$17.5 million total during construction from income taxes using the 4.95% income tax rate currently in effect. During operations, the State of Illinois will receive \$142 thousand annually in income taxes from earnings associated with this project.

Table 5.3 – Total Earnings Impact from the Grain Belt Express Transmission Line for Illinois Counties

	Christian County	Clark County	Cumberland County	Greene County	Macoupin County
Construction					
Direct	\$27,675,312	\$97,908,122	\$28,468,439	\$11,524,370	\$28,696,763
Indirect	\$1,785,093	\$7,726,573	\$1,704,522	\$988,786	\$2,009,743
Induced	\$3,587,816	\$5,600,300	\$923,530	\$764,112	\$2,942,662
Total	\$33,048,222	\$111,234,995	\$31,096,491	\$13,277,268	\$33,649,168
Operations (Annual)					
Direct	\$70,068	\$2,626,812	\$72,076	\$29,177	\$72,654
Indirect	\$71,777	\$34,011	\$59,062	\$5,086	\$41,348
Induced	\$14,425	\$128,151	\$3,430	\$1,684	\$9,070
Total	\$156,270	\$2,788,974	\$134,568	\$35,947	\$123,072

Table 5.4 – Total Earnings Impact from the Grain Belt Express Transmission Line for Illinois Counties (Cont.)

	Montgomery County	Pike County	Scott County	Shelby County	State of Illinois
Construction					
Direct	\$18,818,732	\$43,021,110	\$16,559,522	\$48,909,475	\$321,581,845
Indirect	\$2,903,265	\$3,667,056	\$975,953	\$8,492,434	\$107,993,987
Induced	\$2,298,692	\$4,422,873	\$705,430	\$3,921,464	\$135,911,197
Total	\$24,020,689	\$51,111,039	\$18,240,905	\$61,323,373	\$565,487,029
Operations (Annual)					
Direct	\$47,645	\$108,920	\$41,925	\$123,828	\$3,193,105
Indirect	\$57,991	\$20,294	\$4,218	\$475	\$421,089
Induced	\$9,258	\$9,874	\$1,440	\$7,406	\$981,513
Total	\$114,894	\$139,088	\$47,583	\$131,709	\$4,595,707

Tables 5.5 and 5.6 show the output impacts from the transmission line for the counties in Illinois during construction and operations. The new local output during construction total over \$45.3 million for Christian County, over \$148 million for Clark County, over \$37.8 million for Cumberland County, over \$18 million for Greene County, over \$46.3 million for Macoupin County, over \$35.2 million for Montgomery County, over \$70.3 million for Pike County, over \$22.8 million for Scott County, over \$85.9 million for Shelby County, and over \$942 million for the State of Illinois. The new local long-term output total over \$255 thousand for Christian County, over \$3.4 million for Clark County, over \$146 thousand for Cumberland County, over \$47.8 thousand for Greene County, over \$192 thousand for Macoupin County, over \$194 thousand for Montgomery County, over \$193 thousand for Pike County, over \$63.9 thousand for Scott County, over \$158 thousand for Shelby County, and over \$7.3 million for the State of Illinois.

Table 5.5 – Total Output Impact from the Grain Belt Express Transmission Line for Illinois Counties

	Christian County	Clark County	Cumberland County	Greene County	Macoupin County
Construction					
Direct	\$27,675,312	\$97,908,122	\$28,468,439	\$11,524,370	\$28,696,763
Indirect	\$5,083,516	\$20,121,275	\$5,293,652	\$2,799,040	\$6,196,773
Induced	\$12,562,716	\$29,972,376	\$4,070,938	\$3,730,737	\$11,506,368
Total	\$45,321,544	\$148,001,773	\$37,833,029	\$18,054,147	\$46,399,904
Operations (Annual)					
Direct	\$70,068	\$2,626,812	\$72,076	\$29,177	\$72,654
Indirect	\$134,548	\$95,770	\$59,062	\$10,445	\$84,056
Induced	\$50,486	\$687,764	\$15,336	\$8,244	\$35,645
Total	\$255,102	\$3,410,346	\$146,474	\$47,866	\$192,355

Table 5.6 – Total Output Impact from the Grain Belt Express Transmission Line for Illinois Counties (Cont.)

	Montgomery County	Pike County	Scott County	Shelby County	State of Illinois
Construction					
Direct	\$18,818,732	\$43,021,110	\$16,559,522	\$48,909,475	\$321,581,845
Indirect	\$7,660,955	\$10,496,502	\$2,687,831	\$19,516,866	\$234,860,482
Induced	\$8,724,310	\$16,809,167	\$3,571,486	\$17,475,728	\$385,884,469
Total	\$35,203,997	\$70,326,779	\$22,818,839	\$85,902,069	\$942,326,796
Operations (Annual)					
Direct	\$47,645	\$108,920	\$41,925	\$123,828	\$3,193,105
Indirect	\$112,043	\$47,402	\$14,762	\$1,956	\$1,363,878
Induced	\$35,222	\$37,649	\$7,301	\$33,167	\$2,782,100
Total	\$194,910	\$193,971	\$63,988	\$158,951	\$7,339,083

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VII. Curriculum Vitae (Abbreviated)

David G. Loomis
 Illinois State University
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Education

Doctor of Philosophy, Economics, Temple University, Philadelphia, Pennsylvania, May 1995.

Bachelor of Arts, Mathematics and Honors Economics, Temple University, Magna Cum Laude, May 1985.

Experience

1996-present Illinois State University, Normal, IL
 Full Professor – Department of Economics (2010-present)
 Associate Professor - Department of Economics (2002-2009)
 Assistant Professor - Department of Economics (1996-2002)

- Taught Regulatory Economics, Telecommunications Economics and Public Policy, Industrial Organization and Pricing, Individual and Social Choice, Economics of Energy and Public Policy and a Graduate Seminar Course in Electricity, Natural Gas and Telecommunications Issues.
- Supervised as many as 5 graduate students in research projects each semester.
- Served on numerous departmental committees.

1997-present Institute for Regulatory Policy Studies, Normal, IL
 Executive Director (2005-present)
 Co-Director (1997-2005)

- Grew contributing membership from 5 companies to 16 organizations.
- Doubled the number of workshop/training events annually.
- Supervised 2 Directors, Administrative Staff and internship program.
- Developed and implemented state-level workshops concerning regulatory issues related to the electric, natural gas, and telecommunications industries.

2006-2018 Illinois Wind Working Group, Normal, IL
 Director

- Founded the organization and grew the organizing committee to over 200 key wind stakeholders
- Organized annual wind energy conference with over 400 attendees
- Organized strategic conferences to address critical wind energy issues
- Initiated monthly conference calls to stakeholders
- Devised organizational structure and bylaws

2007-2018 Center for Renewable Energy, Normal, IL
Director

- Created founding document approved by the Illinois State University Board of Trustees and Illinois Board of Higher Education.
- Secured over \$150,000 in funding from private companies.
- Hired and supervised 4 professional staff members and supervised 3 faculty members as Associate Directors.
- Reviewed renewable energy manufacturing grant applications for Illinois Department of Commerce and Economic Opportunity for a \$30 million program.
- Created technical “Due Diligence” documents for the Illinois Finance Authority loan program for wind farm projects in Illinois.

- Published 38 articles in leading journals such as AIMS Energy, Renewable Energy, National Renewable Energy Laboratory Technical Report, Electricity Journal, Energy Economics, Energy Policy, and many others
- Testified over 57 times in formal proceedings regarding wind, solar and transmission projects
- Raised over \$7.7 million in grants
- Raised over \$2.7 million in external funding

2011-present Strategic Economic Research, LLC
President

- Performed economic impact analyses on policy initiatives and energy projects such as wind energy, solar energy, natural gas plants and transmission lines at the county and state level.
- Provided expert testimony before state legislative bodies, state public utility commissions, and county boards.
- Wrote telecommunications policy impact report comparing Illinois to other Midwestern states.

Bryan A. Loomis
Strategic Economic Research, LLC
Vice President

Education

Master of Business Administration (M.B.A.),
Marketing and Healthcare, Belmont University,
Nashville, Tennessee, 2017.

Experience

2019-present Strategic Economic Research, LLC,
Bloomington, IL
Vice President
(2021-present)
Property Tax Analysis and Land Use Director
(2019-2021)

- Directed the property tax analysis by training other associates on the methodology and overseeing the process for over twenty states
- Improved the property tax analysis methodology by researching various state taxing laws and implementing depreciation, taxing jurisdiction millage rates, and other factors into the tax analysis tool
- Executed land use analyses by running Monte Carlo simulations of expected future profits from farming and comparing that to the solar lease
- Performed economic impact modeling using JEDI and IMPLAN tools
- Improved workflow processes by capturing all tasks associated with economic modeling and report-writing, and created automated templates in Asana workplace management software

2019-2021 Viral Healthcare Founders LLC, Nashville, TN

CEO and Founder

- Founded and directed marketing agency for healthcare startups
- Managed three employees
- Mentored and worked with over 30 startups to help them grow their businesses
- Grew an email list to more than 2,000 and LinkedIn following to 3,500
- Created a Slack community and grew to 450 members
- Created weekly video content for distribution on Slack, LinkedIn and Email

Christopher Thankan
Strategic Economic Research, LLC
Economic Analyst

Education

Bachelor of Science in Sustainable & Renewable
Energy (B.A.), Minor in Economics, Illinois State
University, Normal, IL, 2021

Experience

2021-present Strategic Economic Research, LLC,
Bloomington, IL
Economic Analyst

- Create economic impact results on numerous renewable energy projects Feb 2021-Present
- Utilize IMPLAN multipliers along with NREL's JEDI model for analyses
- Review project cost Excel sheets
- Conduct property tax analysis for different US states
- Research taxation in states outside research portfolio
- Complete ad hoc research requests given by the president
- Hosted a webinar on how to run successful permitting hearings
- Research school funding and the impact of renewable energy on state aid to school districts
- Quality check coworkers JEDI models
- Started more accurate methodology for determining property taxes that became the main process used



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